



State of California—Health and Human Services Agency  
**Department of Health Services**



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**Recommendations in follow up to the *Investigation of an Escherichia coli O157:H7 Outbreak Associated with Dole PrePackaged Spinach***

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***Growing***

- Growing ready-to-eat crops in close proximity to livestock or livestock waste may result in an increased risk of contamination. Detailed risk assessments should be conducted by trained individuals to evaluate the risk and implement appropriate remediation/prevention steps.
- Water used to irrigate fields should be tested at a sufficient frequency to assure that fluctuations in microbiological quality of the water do not go unnoticed. Any findings of significant generic coliforms or any E. coli should followed by investigation and corrective action if warranted.
- Wells used for irrigating ready-to-eat crops should be constructed to preclude contamination. Growers of ready-to-eat crops should keep records detailing the construction of the wells used for irrigation and should have the wells inspected by trained individuals prior to using a well of unknown design and safety and at a sufficient frequency thereafter to ensure the continued integrity of the well. Wells that are found to be susceptible to contamination should be immediately repaired or capped.
- Evidence of wildlife activity in proximity to a field where ready-to-eat crops are grown should be investigated and when appropriate, effective measures should be taken to ensure the safety of the crop.

***Harvesting***

- All equipment used to harvest ready-to-eat crops should be cleaned and sanitized daily and between ranches if used on a second ranch during a given day.
- The cleaning and sanitizing of machines used to harvest ready-to-eat crops should be conducted in an area where food contact surfaces will not be subject to re-contamination. Water used in cleaning and sanitizing equipment should come from a potable source.
- Records should be maintained documenting the cleaning and sanitizing of equipment used to harvest ready-to-eat crops.
- Employees responsible for cleaning and sanitizing of harvesting machines should be adequately trained in cleaning and sanitation techniques.
- All cleaning and sanitation solutions should be measured frequently and adjusted as necessary to ensure they stay within their effective range. Logs of the concentrations should be maintained.

- Spray water on harvesting machines that comes into contact with ready-to-eat food should be from a potable source and should be protected from contamination prior to use.
- All contained water (i.e. nurse tanks) that may come into contact with ready-to-eat crops should be from a potable source.
- Field bins that do not utilize liners should be cleaned and sanitized between each use.
- Hand sanitizers must be easily accessible for employees.
- Written Standard Operating Procedures should be in place and readily available at appropriate operating locations. For example, SOPs should be posted where all chlorine solutions were mixed and measured.

### **Cooling**

- Leafy greens transported from the field in bulk containers can rapidly increase in temperature due to summer heat, poor airflow around the product and respiration of the product. Product should be cooled to below 45 degrees F as quickly as possible after harvest. Records should be maintained recording the time from harvest to cooling, the receiving temperature and the maximum temperature reached for each load of product prior to cooling.
- Vacuum tubes (dry and/or wet) should be cleaned and sanitized daily or more frequently as needed and logs of these activities should be maintained.

### **Processing**

- Food safety programs, including Hazard Analysis and Critical Control Point (HACCP) programs, Sanitation Standard Operating Procedures, and Standard Operating Procedures should be tailored to individual processing facilities. In the case of a firm expanding to a new facility, no food processing should take place at the new facility until these plans have been tailored to the new facility.
- All input fields on log sheets, including quality control and supervisor review, should be completed accurately and in a timely fashion.
- Written Standard Operating Procedures should be in place instructing employees how to proceed in the event that any testing conducted by the facility yields an abnormal result. This includes, but is not limited to, results from adenosine triphosphate (ATP) analysis and microbiological testing. Employees should receive training on these procedures.
- Records of raw materials used in any given product code should be maintained so as to assure that traceback of that product to a specific field can be done rapidly (within 1-2 hours) and accurately. Where possible, efforts should be made to minimize the number of source fields for each particular brand and product code. This could be accomplished by shortening the period of time between code changes or by any other effective means. Where possible, lot codes should also include information on processing lines and time of day of bagging, in addition to date of production.
- Records should be maintained documenting the cleaning and sanitizing of all food contact surfaces, including containers used to transport raw product from the field to the processing facility.